

## ABSTRACT

This invention relates to inositolphospholipids, particularly to synthetic phosphatidyl-*myo*-inositols (PtdIns), ceramide-phosphoinositols (CerPhosIns) and their structural and stereochemical analogues.. The invention specifically provides a novel approach to synthesis of inositolphospholipids which is suitable for laboratory scale preparation as well as for large scale industrial production. The synthetic approach is applicable equally well for the preparation of inositolphospholipids carrying saturated lipid chains, unsaturated lipid chains with one or more double or triple bonds, chains with hydroxyl, amino and other functional groups, or combinations of these. In addition, it provides novel high purity diastereomer molecular species of inositolphospholipids that have unequivocally defined structure and absolute stereochemistry in both the *myo*-inositol and the glycerol residues and are obtainable only by the present new approach. The invention further provides methods for characterizing and using these high purity diastereomeric compounds.